

**What is claimed is:**

1     A band gap circuit for generating an output voltage  
to output it from a circuit output terminal, which is  
5     connected to a power supply voltage and a reference  
potential, said band gap circuit comprising:

        a differential amplifier having an inverting input  
terminal, a noninverting input terminal, and an output  
terminal;

10     a first circuit for causing a potential difference to  
occur at said inverting input terminal and said  
noninverting input terminal responding to fluctuation of  
the voltage of said circuit output terminal; and

        a switching element for causing an excess current of  
15     said circuit output terminal to flow in said reference  
potential responding to fluctuation of the potential at  
said output terminal of said differential amplifier, said  
switching element being connected to said circuit output  
terminal and said reference potential and being directly  
20     connected to said output terminal of said differential  
amplifier.

2     The band gap circuit according to claim 1, said band  
gap circuit characterized in that a first element having a  
25     resistive component and a second element having a

capacitive component are connected, and that said first element and said second element remove power supply noise of said power supply voltage.

5     **3**     The band gap circuit according to claim 2, said band gap circuit characterized in that said first element is a transistor.

10    **4**     The band gap circuit according to claim 2, said band gap circuit characterized in that said second element is an ion implantation resistor.

15    **5**     A band gap circuit for generating an output voltage to output it from a circuit output terminal, which is connected to a power supply voltage and a reference potential, said band gap circuit comprising:

        a differential amplifier having an inverting input terminal, a noninverting input terminal, and an output terminal;

20          a first circuit for causing a potential difference to occur at said inverting input terminal and said noninverting input terminal responding to fluctuation of the voltage of said circuit output terminal; and

25          a switching element for causing an excess current of said circuit output terminal to flow in said reference

potential responding to fluctuation of the potential at  
said output terminal of said differential amplifier, said  
switching element being connected to said circuit output  
terminal, said reference potential, and said output  
5 terminal of said differential amplifier,  
a first element having a resistive component, said  
first element being connected to said power supply voltage  
and said circuit output terminal; and  
a second element having a capacitive component, said  
10 second element being connected to the above first element.

6 The band gap circuit according to claim 5, said band  
gap circuit characterized in that said first element is a  
transistor.

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7 The band gap circuit according to claim 5, said band  
gap circuit characterized in that said second element is  
an ion implantation resistor.